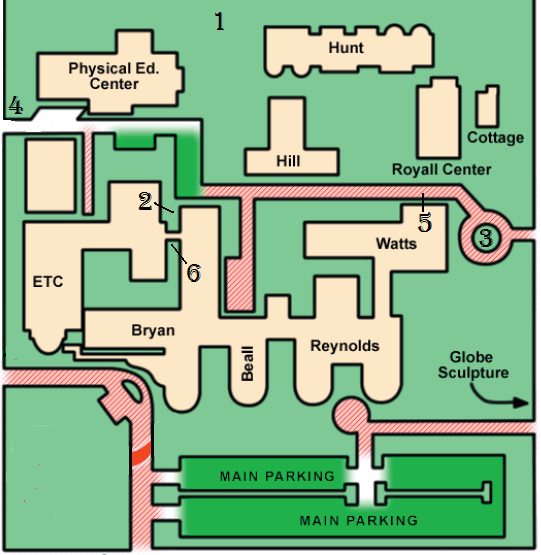
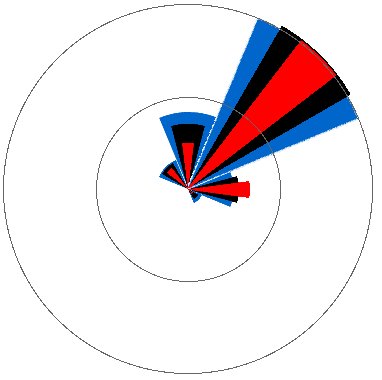
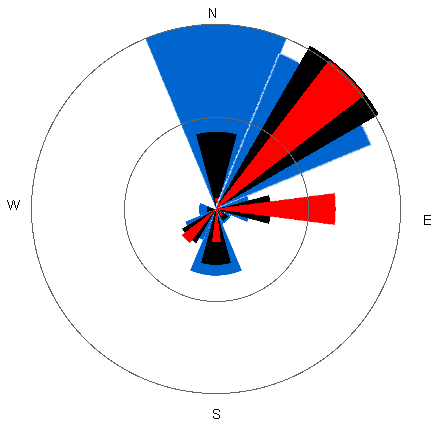
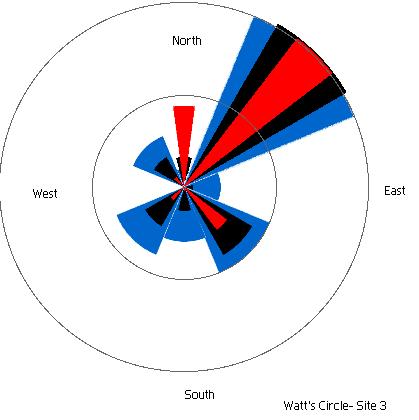
**Potential for Wind Power**

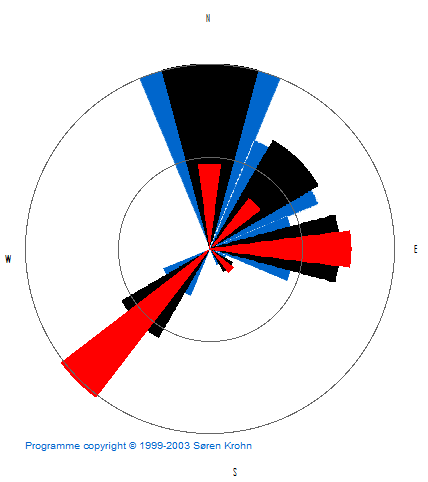
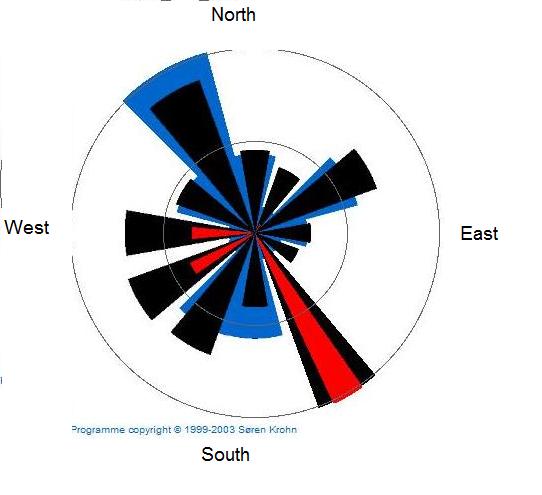
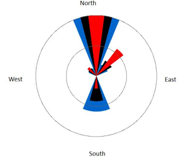
With the new buildings being mapped out for NCSSM we decided that another new development could be used in order to improve NCSSM. Currently there are no alternative energy resources for the campus. The purpose of our experiment was to determine if wind power would be a feasible source of energy for the NCSSM campus. Alternative resources are being pushed nowadays with the great dependence on carbon based fuels polluting the environment and limiting our resources. President Barack Obama has even set a goal of doubling the U.S. alternative energy output over the next three years and wind power would be a great push in this new direction. (Scientific American). We also know that the University of North Carolina at Chapel Hill recently agreed to become carbon neutral within the next two years (Higher Ed). This is a major development and good start at pushing the environmental movement and NCSSM can easily join UNC-C in the greener goal. However wind power is expensive and the bottom line is, is it worth it, and will it prove useful? In order to be very plausible you need an area that has good strong wind speeds that are constant, as well as wind that blows in a general direction to the wind device can be placed in such a way to capture the power of the wind. However, from our experiment we conclude that NCSSM would not be a very good candidate for wind power. The idea and intention is good, however all across campus at our different sites, none of them stood out as being prime candidates for wind power.

 In order to test if the campus of NCSSM had good potential for using wind power, our AP Environmental Science class was divided into six different teams. From these teams each group took what we had learned about wind power and what makes a good location to determine the site at which we wanted to measure and analyze for the potential for wind power. The locations of each group are shown in the diagram to the right. Many of the following sites were chosen for their potential in channeling the wind of creating a wind tunnel effect that would be used to increase the wind speed and keep the wind coming from a particular direction. In order to test our hypothesizes “good candidates” each group went out over a course of two weeks during the morning afternoon and evening of each day, and measured the average wind speed over a course of ten minutes, and the direction from which the wind was coming from by using a compass. By measuring almost twenty measurements all spread out along the time of day and days of the week in different weather conditions, we were able to get a more accurate result for the total possibility for wind power, instead of just a day’s possibility. In an ideal situation much more data would have been collected at these however time constraints limited it to the twenty data points. From these points and by knowing the direction that each measurement came from we were able to create wind roses of each site that were used to get the best idea of the wind potential.

Each group’s wind rose that was calculated is shown below. Each one corresponds with the sites mentioned above:

**Site 1 Site 2 Site 3**

**Site 4** **Site 5**   **Site 6**   

According to all of the data collected and the wind roses that were created the NCSSM campus actually would not be a good candidate for win power usage. The American Wind Energy Association states that if a location has 9.8 to 11.5 miles per hour of steady wind, then it can be considered but may not still be plausible for a suitable area in which wind devices can be of use (Awea.org Small Wind). At NCSSM among all of the sites gathers the highest average wind speed was at site 3 for an average wind speed of 1.7185 meters per second (3.844 miles per hour). From this we can see that even the highest values found at NCSSM do not meet the requirements for even the lowest wind speed requirements. In conclusion, wind power is not a probable resource for the NCSSM campus. There is just not enough wind.

During our research however there were in fact areas that we did not have access to that some group considered prime subjects for good wind conditions. Roof tops and any places that were not easily accessible to the public were forbidden by the school for us to take measurements at. From my observation the roof of the PEC almost constantly had a wind coming from the west. The flags on the roof top were always violently shaking in the wind. It would have more beneficial if we were allowed access to areas to such areas that had great wind potential, however, our study was indeed limited. While we did conclude that wind power would not be a plausible option for the NCSSM campus to use as a renewable resource, there are other alternatives. Solar energy is an effective way to harness the power of the sun and use it for energy. This is a very plausible solution for NCSSM since many days sun is available and the rooftops would be good for solar panels. In any case using alternative energy even on a small scale would be beneficial in many ways to the campus in cutting costs overtime and preventing pollution.

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